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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,087	03/26/2004	Igor Landau	3521.187	8220

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EXAMINER

EVANS, GEOFFREY S

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/810,087

Applicant(s)

LANDAU, IGOR

Examiner

Geoffrey S Evans

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8, 10-15 and 17-23 is/are rejected.
- 7) ☒ Claim(s) 5, 9 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20040524
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_

### DETAILED ACTION

1. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 3 it is unclear where "the coating" is located. Please also note that there is no antecedent basis for "the coating". Respectfully suggest making claim 3 depend upon claim 2 to obviate this rejection.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,3,4,6,12,14,15,17,18,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crouch et al. in U.S. Patent No. 6,580,561 in view of Sussmann et al. in EP 718,642 and Codella in U.S. Patent No. 5,706,135. Crouch et al. discloses a beam splitter apparatus with a thermally conducting frame (element 26) and a window (element 20) that is not made of diamond that conducts heat to the frame. Sussmann et al. teaches in column 2, lines 32-36 that the material diamond has high thermal conductivity and high resistance to thermal shock. Codella teaches using a diamond beamsplitter because it has effective transmission and deflection for incident radiation over a wide range of wavelengths (see column 3, line 49 to column 4, line 3). Codella further teachings optionally using a coating (see column 4, lines 65-68) to enhance reflectivity at a desired wavelength. Regarding claim 4, elements 27 and 28 are

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considered to be a cooling system that enables the cooling fluid to flow (see column 4, lines 4-11). It would have been obvious to adapt Crouch et al. in view of Sussmann et al. and Codella et al. to provide this to increase the thermal conductivity of the beamsplitter so that more powerful radiation beams can be split without damaging the beamsplitter.

4. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crouch et al. in view of Sussmann et al. and Codella et al. as applied to claim 1 above, and further in view of Zeller in U.S. Patent Application Publication No.2003/0123160 A1. Zeller teaches a retaining groove and an O-ring (e.g. see element 24 in figure 4 or element 129 in figure 5) that operate to press the window to the frame and that the frame comprises two sections (e.g. see figure 4). It would have been obvious to adapt Crouch et al. in view of Sussmann et al., Codella et al., and Zeller to provide this to ensure high thermal conductivity between the window and the frame.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crouch et al. in view of Sussmann et al. and Codella et al. as applied to claim 1 above, and further in view of Bluege in U.S. Patent No. 5,020,880. Bluege teaches using copper, a known heat conductor, in a frame holding a diamond window (see column 3, lines 66,67 and column 4, line 18-20). It would have been obvious to adapt Crouch et al. in view of Sussmann et al., Codella et al. and Bluege to provide this to conduct heat away from the diamond window.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crouch et al. in view of Sussmann et al., and Codella et al. as applied to claim 12 above, and

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further in view of Grigoriev et al. in U.S. Patent No. 6,020,992. Grigoriev teaches using as coatings  $\text{ThF}_4$ , Ge, ZnSe and  $\text{BaF}_2$  to prevent unwanted absorption of radiation by a beamsplitter (e.g. see column 1, line 10). It would have been obvious to adapt Crouch et al. in view of Sussmann et al., and Codella et al., and Grigoriev et al. to prevent unwanted absorption of the radiation by the beamsplitter.

7. Claims 20,21,22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Senda in Japan Patent Document No. 2000-190,087A in view of Crouch et al., Sussmann et al. and Codella in U.S. Patent No. 5,706,135. Senda discloses a radiation source ( $\text{CO}_2$  laser 11), a polarizing beam splitter (12), and a lens (19) arranged to receive the reflected beam and direct it to a workpiece (15). Senda does not disclose the type of polarizing beam splitter used. Crouch et al. discloses a beam splitter apparatus with a thermally conducting frame (element 26) and a window (element 20) that is not made of diamond that conducts heat to the frame. Sussmann et al. teaches in column 2, lines 32-36 that the material diamond has high thermal conductivity and high resistance to thermal shock. Codella teaches using a diamond beamsplitter because it has nearly uniform transmittance (see column 4, line 17). It would have been obvious to adapt Senda in view of Crouch et al., Sussmann et al. and Codella to provide this to protect the beamsplitter from the high power radiation by efficiently conducting heat while using a beamsplitter that has nearly uniform transmittance.

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8. Claims 5,9 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

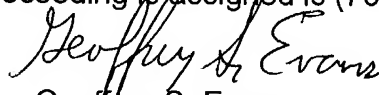
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Simon et al. in U.S. Patent No. 5,587,831 discloses a diamond beamsplitter.

10. It is noted that Applicant originally filed under the name "Igor Livshits" (with an unsigned declaration) and has since submitted a declaration with the inventor's name stated as "Igor Landau". Did Applicant change his name or was there an error of some sort? Applicant is encouraged to file an Application Data Sheet to ensure that any name on any resulting patent from this application is correct. See MPEP 605.04(b) and MPEP 605.04(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 6:30AM to 4:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571)-272-1171. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9306.

GSE

  
Geoffrey S. Evans  
Primary Examiner  
Group 1700